Journal of Obstetrics, Gynecology and Cancer Research | ISSN: 2476-5848

Evaluation of Thyroid Dysfunction in Women with Gestational Diabetes Mellitus Compared to Healthy Pregnant Women Referred to Kowsar Hospital in Qazvin from 2017 to 2018

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Article Info

doi 10.30699/jogcr.5.1.6

Received: 2020/03/05;
Accepted: 2020/05/27;
Published Online: 12 Aug 2020;

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ABSTRACT

Background & Objective: In this study, thyroid dysfunction in women with gestational diabetes mellitus was examined and compared to that in healthy pregnant women referred to Kowsar Hospital in Qazvin in 2017 and 2018.

Materials & Methods: In this case-control study, 100 women with gestational diabetes mellitus and 100 non diabetic healthy pregnant women who referred to Kowsar Hospital in Qazvin from 2017 to 2018 were selected using the convenience sampling method, and their serum thyroxine, anti-TPO, and TSH levels were determined and compared. Moreover, Apgar scores and anthropometric variables were compared between the two groups.

Results: In the present study, there were statistically significant differences between the groups in terms of the TSH level (P=0.012), assessed by the independent t-test, the thyroxine (P=0.0001) and anti-TPO (P=0.008) levels, both examined by the Mann-Whitney test, which associated with high levels of TSH and anti-TPO and low levels of thyroxine in the diabetic group. No differences were found regarding the Apgar scores and anthropometric variables between the groups (P>0.05).

Conclusion: Overall, according to the obtained results, it can be inferred that thyroid dysfunction, realized as hypothyroid with high anti-TPO levels, was more prevalent in women with gestational diabetes mellitus compared to healthy pregnant women.

Keywords: Diabetes, Pregnancy, Thyroid Function

Introduction

Gestational diabetes mellitus (GDM) and thyroid dysfunction in pregnancy are among the most prevalent diseases that influence pregnancy outcomes (1). Diabetes is one of the most common metabolic diseases associated with elevated blood glucose and metabolic alternations in lipids, sugars, and proteins, which has a prevalence of 3.5-5% during pregnancy (2). Its known complications during pregnancy include preeclampsia, preterm labor, miscarriage, congenital anomalies, shoulder dystocia, and stillbirth for the fetus. Accordingly, it is a strong risk factor for adverse pregnancy outcomes (3). The effects of diabetes will remain even after childbirth, and approximately 40% of women with GDM will develop overt diabetes within the next 20 years (4). Harmful effects of thyroid dysfunction during pregnancy have been proven to affect the course of pregnancy and fetal development (5). The fetus needs thyroxine for normal growth, especially for brain development, and since the production and secretion of fetal thyroid hormones do not occur until the 20th week of pregnancy, fetal growth in the first trimester is completely dependent on the thyroxine transferred from the mother (6). There is a close correlation between maternal thyroid function and pregnancy outcomes; it has been observed that the presence of thyroid autoantibodies in the mother's blood associates with an increase in fetal loss in early pregnancy (7). Both untreated thyrotoxicosis and hypothyroidism relate to adverse pregnancy outcomes (8). Even in several studies, the presence of subclinical hypothyroidism associated with increased pregnancy complications, including placental abruption (increased three times), preterm labor (increased twice), and infants with low birth weight (increased twice). Furthermore, various conducted studies indicated that increased thyroid peroxidase antibodies